LEVIN, G.Z.; SVETLICHNYY, V.A. (Leningrad)

Conservative therapy of acute disorders of cerebral circulation. Klin.med. no.9:155-158 '62. (MIRA 15:12)

1. Iz nevrologicheskogo sosudistogo otdeleniya (rukovoditel' - doktor med.nauk G.Z. Levin) Psikhonevrologicheskogo instituta imeni V.M. Bekhtereva (dir. - kand.med.nauk B.A. Lebedev).
(CEREBROVASCULAR DISEASE)

SVETLICHNYY, V.A., Geroy Sotsialisticheskogo Truda

Arithmetic of machine operators. IUn. nat. no.6:7 Je '63.
(MIRA 16:8)

SVETLICHNYY, Vitaliy Georgiyevich; STARCHAKOVA, I.I., red.; MAMONTOVA, N.N., tekhn.red.

[Technique of commercial calculations on an abacus] Tekhnika torgovykh vychislenii na schetakh. Moskva, Gos.izd-vo torg. lit-ry, 1962. 85 p. (MIRA 15:5)
(Arithmetic, Commercial) (Abacus)

SVETLICHNYY, Vitaliy Georgiyevich; KIRAKOZOVA, N.Sh., red.

[Commercial computations] Torgovye vychisleniia. Moskva, Izd-vo "Ekonomika," 1964. 190 p. (MIRA 17:5)

SVETLICHNYY, V.I., inshener, kandidat tekhnicheskikh nauk.

Organization of construction of 2-3 stroy dwellings. Gor.khoz.Mosk.21 no.1: 23-24 Ja '47. (MLRA 6:11)

(Moscow--Building) (Building--Moscow)

SVETLICHNYY, V. I.

Svetlichnyy, V. I. "Experience in the assembly-line method of building homes in the area of Peschanaya Ulitsa", Gor. khoz-vo Moskvy, 1949, No. 2, p. 47-65.

So: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949).

SVETLICHNYY, V.I., kandidat tekhnicheskikh nauk, chlen-korrespondent.

Immediate tasks in the organization, mechanization and reduction of costs in housing and public building construction. Gor.khoz.Mosk. 25 no.2:14-18 F '51. (MLRA 6:11)

1. Akademiya arkhitektury SSSR. (Construction industry)

SVETLICHNYY, V. I.

Building

Immediate tasks of planning and building organizations for raising the quality of construction. Gor. khoz. Mosk. no. 5:5-8 May 1952.

Monthly List of Russian Accessions, Library of Congress, July 1952.
UNCLASSIFIED.

SVETLICHNYY, V. I.

APARTMENT HOUSES-MOSCOW

Plans for standard units in many-storied residential buildings. Gor. khoz. Mosk. 26 no. 9:5-19 S '52.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

SVETLICHNYY, V.I.

PLOTNIKOV, N.P., glavnyy redaktor; SVETLICHNYY, V.I.; DOROKHOV, V.; MUROMSKIY, P.G.; SPYSHNOV, P.A.; SMIRNOV, G.Ya.; KUPRIYANOV, Ye.M.; RAZINKOV, P., redaktor; LIL'YE, A., tekhnicheskiy redaktor.

[New technology on Moscow construction projects] Novaia tekhnika na stroikakh Moskvy. [Moskva], Moskovskii rabochii, 1954. 433 p. [Microfilm] (MLRA 8:2)

1. Nachal'nik Tekhnicheskogo upravleniya Mossoveta (for Plotnikov). 2. Zamestitel' nachal'nika Glavmosstroya (for Svetlichnyy). 3. Glavnyy inzhener Spetsial'nogo konstruktorskogo byuro Arkhitekturno-planirovochnogo upravleniya Mossoveta (for Dorokhov). 4. Nachal'nik Tekhnicheskogo upravleniya Ministerstva promyshlennosti stroitel'nykh materialov RSFSR. (for Muromskiy) 5. Nachal'nik Otdela po sanitarno-tekhnicheskim sooruzheniyam Gosudarstvennogo Komiteta Soveta Ministrov SSSR po delam stroitel'stva (for Spyshnov). 6. Glavnyy inzhener tresta "Moszhilmekhanizatsiya." (for Smirnov). 7. Direktor po nauchnoy chasti Vsesoyuznogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii stroitel'stva. (for Kupriyanov)
(Moscow--Building) (Moscow--Architecture--Desings and plans)

BARANNIKOV, M.G.; GVOZDEV, A.A.; GUSHCHIN, V.M.; DAVYDOV, S.S.; DUDOROV, N.P.; KOLENKOV, V.A.; LOVEYKO, I.I.; SVETLICHNYY, V.A.; SKROMTAYEV, B.G.; KUCHERENKO, V.A., redaktor; BARSKOV, I.M., redaktor; RUBANENKO, B.P., redaktor; GORSHKOV, A.P., redaktor izdatel'stva; STRELETSKIY, I.A., tekhnicheskiy redaktor

[Construction practices abroad; in countries of Western Europe. Based on material gathered by a delegation of Soviet building specialists] Opyt stroitel'stva za rubezhom; v stranakh Zapadnoi Evropy. Po materialam otchetov delegatsii sovetskikh spetsialistov-stroitelei. Moskva, Gos. Iz-vo lit-ry po stroit. i arkhitekture, 1956. 365 p.
(Europe, Western--Building) (MIRA 10:1)

SVETLICHNYY, V.

Building practices on virgin lands. Sel'. stroi. 12 no.8:15 Ag '57. (MLRA 10:9)

1. Starshiy prorab Sovkhoz "Cherlanskiy" Omskoy oblasti.
(Omsk Province--Building)

SVETLICHNYY, V.I., red.; BABUROV, V.V., red.; DESYATKOV, G.V., red.; KRASIL'NIKOV, P.A., red.; KUDRYAVTSEV, A.O., red.; SVETLICHNYY, B.Ye., red.; SMIRNOV, N.S., red.; SHKVARIKOV, V.A., red.; PEVZNER, A.S., red.izd-va; GILENSON, P.G., tekhn.red.

[Regulations and norms for city planning and construction (SN 41-58)] Pravila i normy planirovki i zastroiki gorodov, SN 41-58. Izdanie ofitsial'noe. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 178 p. (MIRA 12:7)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva.

(City planning)

ALABYAN, K.S.[deceased]; BLOKHIN, P.N.; BOTVINKO, M.Ye.; DEVYATKOV,G.V.;DMITRIYEV, A.D.; YERSHOV, P.N.; ZAYTSEV, A.G.; KIBIREV, S.F.; KOSTYUKOVSKIY, M.G.; KUZNETSOV, B.T.; L'VOV, G.N.; MOGIL'NYY, A.I.; ORLOV, G.M., OVSYANNIKOV, K.L.; PROMYSLOV, V.F.; SMIRNOV, N.N.; SKACHKOV, I.A.; SOLOFMENKO, N.A.; SUSNIKOV, A.A.; CHAGIN, D.A.; KUCHERENKO, V.A., obshchiy red.; GRISHMANOV, I.A., obshchiy red.; SVETLICHNYY, V.I., obshchiy red.; RUBANENKO, B.R., obshchiy red.; BARSKOV, I.M., red.; UDOD, V.Ya., red.izd-va; YUDINA, L.A., red.izd-va; GOLOVKINA, A.A., tekhn. red.

[Building practices in foreign countries; Northern Europe and German Federal Republic] Opyt stroitel'stva za rubezhom; v stranakh Severnoi Evropy i FRG. Po materialam otchetov delegatsii sovetskikh spetsialistov-stroitelei. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 598 p. (MIRA 12:12)

1. Predsedatel' Gosstroya SSSR (for Kucherenko). 2. Zamestitel' predsedatelya Gosstroya SSSR (for Svetlichnyy).
(Europe, Western--Building)

SVET'LICHNYY, V.

An important task of the national economy. Zhil. stroi. no.1:2-5 '59. (MIRA 12:10)

1.Zamestitel' predsedatelya Gosstroya SSSR.
(Apartment houses) (Precast concrete construction)

SVETLICHNYY, Vasiliy Il'ich; KOMAROVA, T.F., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Housing construction in the U.S.S.R.] O zhilishchnom stroitel'stve v SSSR. Moskva, Izd-vo "Znanie," 1960. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii, Ser.3, Ekonomika, no.16). (MIRA 13:5)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Svetlichnyy).
(Apartment houses) (Precast concrete construction)

SVETLICHNYY, V.I.

In opposition to tendentious evaluations of the new, progressive direction taken by Soviet architecture. Izv. ASiA no.2:34-41 '61. (MIRA 15:1)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR.
(Architecture)

SVETLICHNYY, V.

Problems of Greater Moscow. Zhil. stroi. no. 4:15-16 Ap '61.
(MIRA 14:5)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR.
(Moscow region--City planning)

SVETLICHNYY, V.L., inzh.

Device for automatic testing of the insulation of excitation circuits of hydraulic generators. Elek.sta. 29 no.9:49-50 S '58. (MIRA 11:11)

(Electric generators--Testing)

L 2707-66 EWT(m)/EPF(c)/EWP(L)/EWP(t)/EWP(b) IJP(c) JD/JG/WB

ACCESSION NR: AP5017187 UR/0139/65/000/003/0155/0155

36
B

AUTHOR: Svetlichnyy, V. M.

TITLE: Chemical etching of gallium arsenide

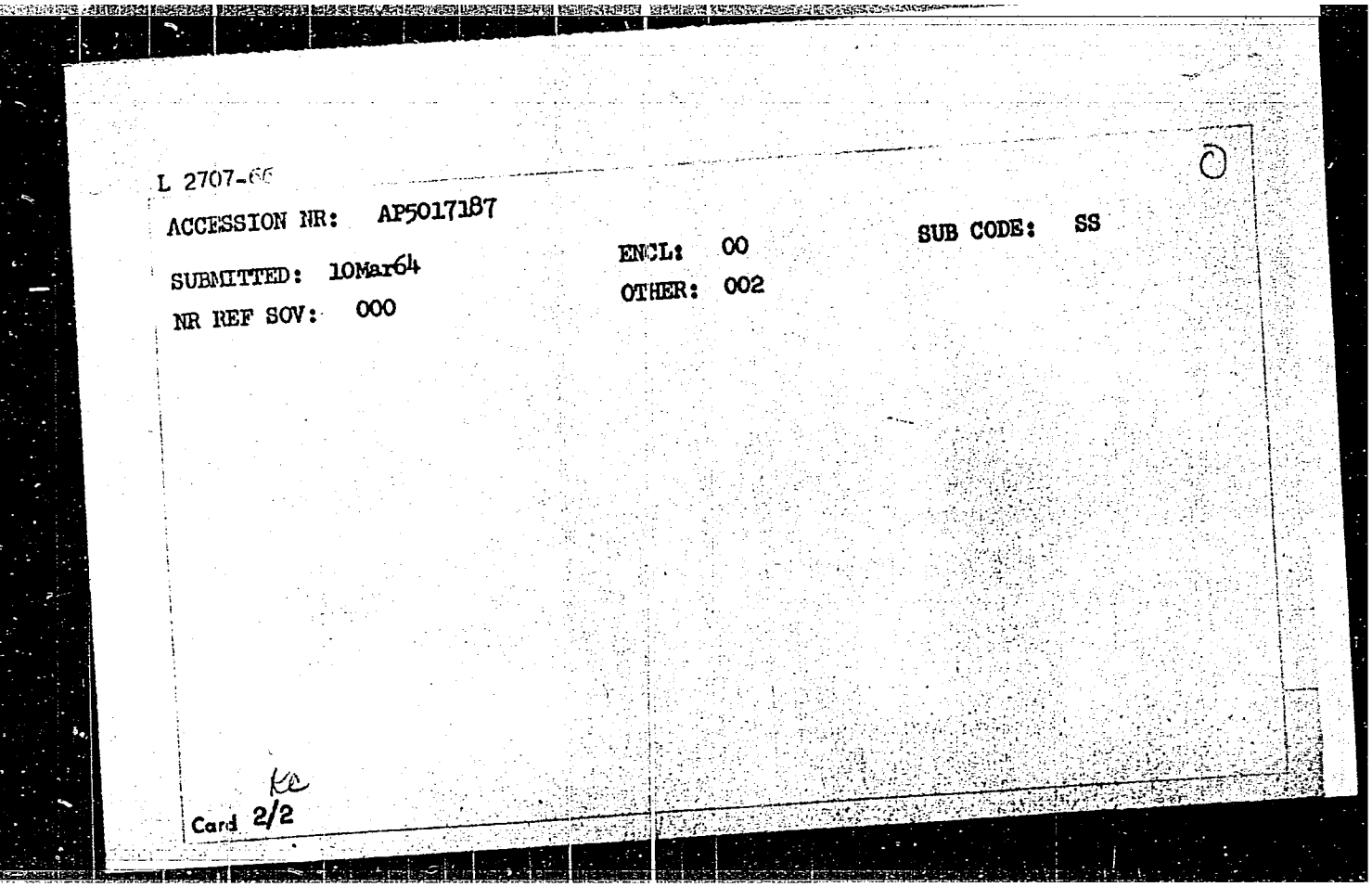
SOURCE: IVUZ. Fizika, no. 3, 1965, 155, and insert facing p. 155

TOPIC TAGS: gallium arsenide, metal etching, surface active agent

ABSTRACT: The author gives the compositions of two etchants which he has been using successfully for the surface finishing of gallium arsenide. Etchant no. 1 (1 part 30% H_2O_2, and 2 parts 0.25M solution of NaOH in water) is selective and is used to determine the crystallographic orientations of the planes of the investigated samples to determine dislocation density, and to treat pn junctions. Etchant no. 2 (1 part 30% H_2O_2, 5 parts concentrated H_2SO_4, and 2 parts H_2O) is used as a polishing agent and yields a mirror finish. It is also used for successive removal of thin layers in diffusion studies. Samples of etch figures obtained with the two etchants are included. It is recommended that any other etchants contain hydrogen peroxide rather than acid as an oxidizer. Orig. art. has: 4 figures.

ASSOCIATION: Khar'kovskiy gosuniversitet im. A. M. Gor'kogo (Khar'kov State University)

Card 1/2



L 2707-65

ACCESSION NR: AP5017187

SUBMITTED: 10Mar64 ENCL: 00 SUB CODE: SS

NR REF SOV: 000 OTHER: 002

Card 2/2

L 20754-66 EWA(h)/EWT(1)

ACC NR: AP6010734 SOURCE CODE: UR/0142/66/009/001/0132/0133

AUTHOR: Petrov, V. A.; Svetlichnyy, V. M.

35
B

ORG: none

TITLE: Detector of rf power peaks

SOURCE: IVUZ. Radiotekhnika, v. 9, no. 1, 1966, 132-133

TOPIC TAGS: waveguide, waveguide transmission, detection

ABSTRACT: A method for detecting power spikes 25 in a waveguide system is described. The detecting element is a vacuum-diode section inserted between source and load, and having the π-cross section shown in the figure. The diode current vs rf power characteristic shows a strong correlation up to a certain saturation level, beyond which diode current increases only slightly with higher transmitted power. An increase in load voltage without a corresponding increase in diode current is thus an indication of a power spike. In the saturation range, the authors found no more than 6 db variation in diode output for power variation from 500 w to 15 kv. Response time is limited by shunt capacities, but should be no worse than several periods of the monitored wavelength, e.g., at 10 Gc, around a nanosecond. The VSWR of an experimental de-

2

Card 1/2 UDC: 621.317.795

L 20754-66

ACC NR: AP6010734

tector section was no worse than 1.05. The power handling capacity can be increased by coating the detector walls with material which inhibits secondary emission. Orig. art. has: 3 figures.

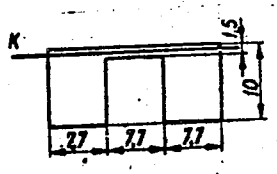


Fig. 1. Diode detector section

K - Tungsten cathode, ribbon. or cylindrical.

[SH]

SUB CODE: 09, 17/ SUBM DATE: 14Apr65/ ORIG REF: 003/
OTH REF: 001/ ATD PRESS: 4224

Card 2/2

SVETLICHNYY, V.P. (g.Gorodnya Chernigovskoy oblasti)

Apparatus for demonstrating the addition of vibrations. Fiz.v shkole 22 no.6:54-55 N-D '62. (MIRA 16:2)
(Physics--Experiments) (Vibration)

FUKARAK, F.; GAFNER, J.; MESTROVIC, S.; KLEPAC, D.; LNENICEK, Z.; ZMIJANAC, D.; SEVNIK, F.; ZAGAR, B.; MIKLAVZIC, J.; KNEZ, A.; PIPAN, R.; FUNKL, L.; SVETLICIC, A.; ZUMER, L.; KEVO, R.

Reveiw of periodicals; silviculture. Bul sc Youg 9 no.4/5:144-145 Ag-O '64.

20

YUGOSLAVIA

B. SVETLICIC, Department of Pharmacology and Toxicology, School of Veterinary Medicine (Zavod za farmakologiju i toksikologiju Veterinarskog fakulteta), and Institute for Medical Research and Occupational Medicine (Institut za medicinska istrazivanja i medicinu rada), Zagreb.

"Therapeutic Possibilities in Poisoning with Organic Phosphates."

Zagreb, Arhiv za Higijenu Rada i Toksikologiju, Vol 12, No 3-4, 1961; pp 179-183.

Abstract [English summary modified]: Brief review of toxicology - muscarinic, nicotinic and central effects on the nervous system plus the remote ones on the peripheral one (demyelinization). Best and main countermeasures are facilitation of breathing by removal of upper respiratory secretions; tracheotomy, oxygen; atropine or oximes or both (reference to author's dissertation 1959). Five references including 3 Western ones.

1/1

SVETLICIC, Elimir, dr., ing.

Analysis of the roughness in canals of natural flow. Vodoprivreda Jug 2 no.7/8:46-54 '59. (EEAI 10:1)

1. Arhitektonski, gradevinski i geodezijski fakultet, Zagreb.
(Rivers) (Hydraulics)

SVETLIKOV, A.

Miracle land. Tekh.mol. 28 no.8:19-21 '60. (MIRA 13:9)

1. Upravlyayushchiy delami TSentral'nogo komiteta Vsesoyuznogo Leninskogo kommunisticheskogo soyuza molodezhi.
(Moscow--Recreation areas)

SVETLIKOV, Anatoliy Alekseyevich; KUKHTAREV, Mikhail Pavlovich; KOSTINA, T., red.

[A country where people live in anxiety] Strana, gde zhivut nespokoino. Moskva, Molodaia gvardiia, 1964. 110 p. (MIRA 17:9)

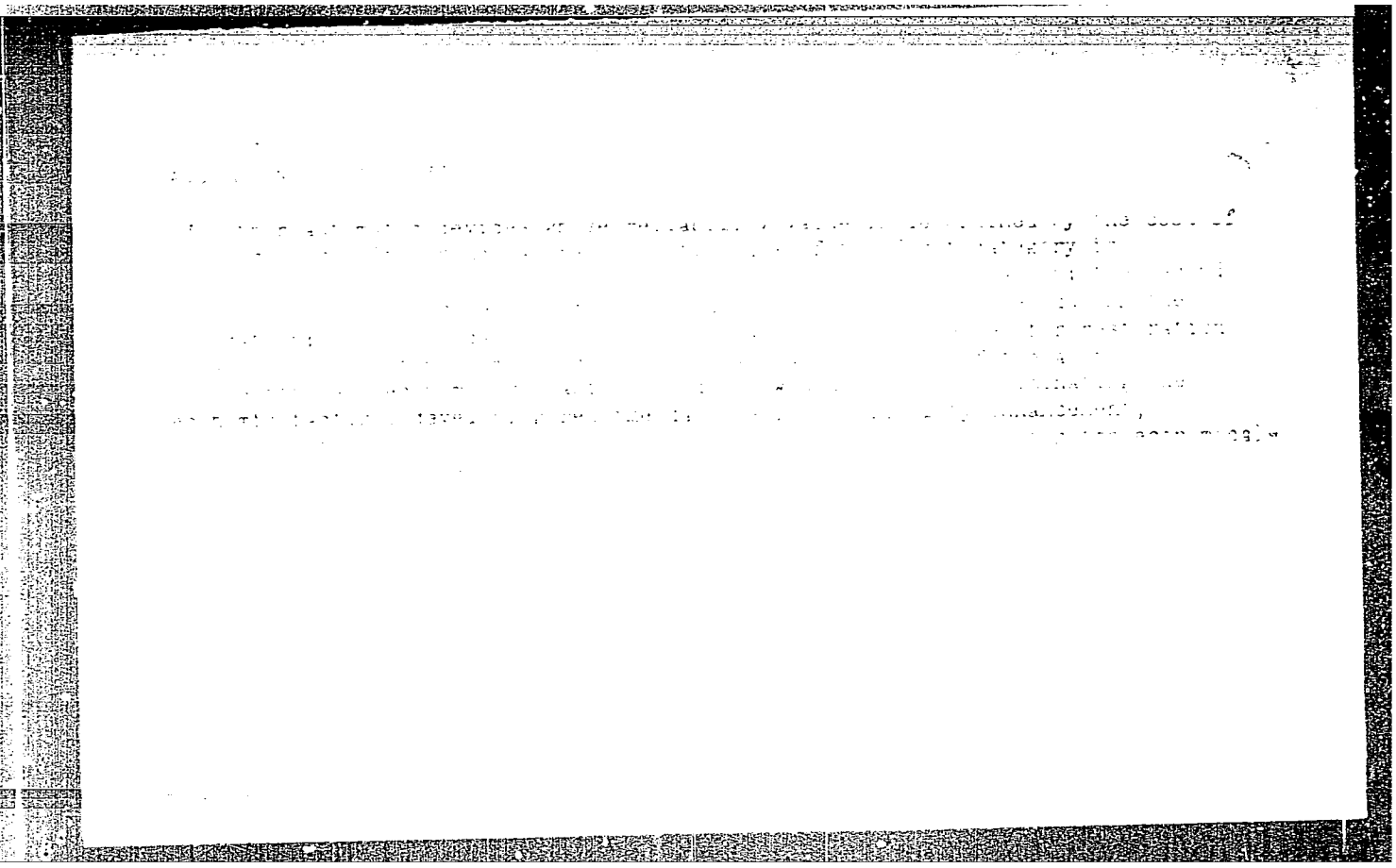
SVETLIKOV, Yu.A., inzh.

Formulation and first stage of solving the problem of mass service of transport vessels by traveling repair brigades. Trudy LIVT no.64: 11-22 '64. (MIRA 18:10)

AUTHOR: [illegible]

CITED SOURCE: [illegible]

TRANSLATION: The necessity is noted of quantitative evaluation of reliability of [illegible]



SVETLIKOV, L.A., inzh.

Reliability indices of the elements of marine electric automation mechanisms and electric equipment. Sudostroenie 31 no.5:38-40 My '65. (MIRA 18:8)

SVETLIN, Zorislav, dipl. inz.

Electric installations for the control of ship steering wheels. Automatika 5 no.3:193-198 '64.

1. Electrotechnical Institute of the "Rade Koncar" Enterprise, Zagreb.

SVETLIN, Z.

Sixth Yugoslav Symposium on Electronics, Telecommunication, Automation, and Nucleonics in Marine Engineering and Navigation. Automatika 5 no.5:426-427 '64.

BOL'SHAKOV,V.F.; SVETLITSKIY,S.M.

Screw conveyor for plaster mortar. Rats. i izobr. predl. v stroi. no.86:16-18 '54. (MLRA 8:8)

1. Trest Zaporozhstroy
(Plastering) (Conveying machinery)

Svetlitskiy, V. A.

24(0); 25(2) PHASE I BOOK EXPLOITATION SOV/2037

Moscow. Vysshaye tekhnicheskoye uchilishche imeni N.E. Baumana

Nauchety na prochnost' v mashinostroyenii; [sbornik] Design for Strength in Mechanical Engineering; Collection of Articles) Moscow, Mashgiz, 1958. 244 p. (Series: Its: [Trudy] 89) 3,300 copies printed.

Ed.: O.A. Nikolayev, Doctor of Technical Sciences, Professor, Honored Worker in Science and Technology; Ed. of Publishing House: M.P. Chernyshova; Tech. Ed.: B.I. Model'; Managing Ed. for Literature on Heavy Machine Building (Mashgiz): S.Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for engineering staffs in the machine-building industry and may be useful to scientific workers and senior students of mechanical engineering vtuzes.

COVERAGE: The articles cover the graphoanalytical method of designing circular symmetrically loaded reinforced plates, methods of designing rotating heated disks for transverse bending, and calculation of preloaded belleville springs. Also discussed are differential equations for deformation of rubber-cord shells of rotation, the theory of flexure of rubber-cord hose, and stability problems of elastic cylindrical shells. Results of experimental investigations of strength and ductility of construcional steels and other materials are presented. Several articles are devoted to problems of vibrations in machinery. There are 78 references; 71 Soviet, 4 German, 2 English, and 1 French.

Konyukhko, Z.M., Candidate of Technical Sciences, Docent.
Construction of Stress-Strain Diagrams for Shear of Brittle Materials Based on Results of Tension and Compression Tests 197
A method is described for obtaining stress-strain diagrams for shear from stress-strain diagrams for tension and compression of materials with different characteristics in tension and compression. Results of experiments are compared with theoretical conclusions.

Blyumik, S.I., Candidate of Technical Sciences, Docent.
Calculation of Free Vibrations in a Four-column Press 210
A method for determining the fundamental natural frequency of a four-column press, allowing for elasticity of the foundation, is discussed. The formulas derived can also be used for cases of very rigid foundations by putting the coefficient of soil compressibility equal to zero.

Kolesnikov, K.S., Candidate of Technical Sciences, Docent.
Deflections of Beams in the Case of Vibration of Their Supports 226
A method is presented for determining the deflection of variable cross-section beams subjected to forced vibrations arising from the periodic motion of supports.

Svetlitskiy, V.A., Engineer. Determination of Basic Premises for Forced Motion 234
The paper presents a method for checking whether the forced motion analyzed is in accordance with the initial assumptions used for the theoretical solution. The possibility of deviation of existing conditions from initial assumptions is discussed.

AVAILABLE: Library of Congress

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Card 8/8

SVETLITSKY V. A.

SOV/24-58-10-33/34

AUTHOR: Panovko, Ya. G.

TITLE: A Conference on Elastic Vibrations at the Institute of Mechanical Engineering of the Academy of Sciences of the Latvian SSR (Soveshchaniye po voprosam uprugikh kolebaniy v Institute mashinovedeniya Akademii nauk Latviyskoy SSR)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, Nr 10, pp 158-159 (USSR)

ABSTRACT: This Conference took place on June 11-15, 1958, in Riga. Altogether over 70 people took part in the conference (apart from those normally based at Riga). Eleven papers were read:
1) "The effect of vibration on systems with dry friction", by I. I. Blekhman and G. Yu. Dzhanelidze (Leningrad);
2) Two papers on dynamic problems in the nonlinear theory of plates and the shells by V. V. Bolotin and A. S. Vol'mir (Moscow);
3) "A qualitative study of the form and frequencies of natural vibrations of thin elastic shells", by A. L. Goldenveyzer (Moscow).
4) "Some problems in connection with vibrations of elastic rods in the case of large displacements", by Yu. S. Shkenev (Moscow).
5) "Coupled vibrations of vanes and discs in turbines" and "Passage through resonance of a linear system with non-linearly varying frequency", by A. P. Filippov (Kharkov),
6) "Some problems in the dynamics of an inextendable elastic stretched thread", by V. A. Svetlitskiy (Moscow)
7) "On the similarity of dynamic processes in solid bodies", by A. G. Nazarov (Yerevan),
8) "The problem of constructional hysteresis", by Ya. G. Panovko (Riga)
9) "Constructional hysteresis in resin-metallic shock absorbers", by G. I. Shkhinek (Riga).
The conference was closed with a speech by M. M. Filonenko-Borodich (Moscow).

Card 1/2

Card 2/2

SOV/24-58-11-10/42

AUTHOR: Svetlitskiy, V. A. (Moscow)

TITLE: Oscillations of a String Taking into Consideration Tension Changes (Kolebaniya struny s uchetom izmeneniya natyazheniya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 11, pp 31-36 (USSR)

ABSTRACT: On the basis of general equations of motion of a stretched string and assuming certain limitations, the equations are derived of small oscillations of a uniformly stretched string in a plane, taking into consideration the variability of the tensioning. For the solution obtained with the usual assumption of the tensioning remaining constant, an approximate correction is determined for the particular case of a fastened string. On the suggestion of G. K. Pozharitskiy, the author compares the accurate and approximate equations of motion. From the results of a numerical example it can be seen that, for the conditions pertaining to that example, the kinetic energy of the string due to variable tension amounts to almost 60% of the kinetic energy caused by the constant tension; even in other cases where the

Card1/2

SVETLITSKIY, V. A., Cand of Tech Sciences --- (diss) "Dynamics of Transmissions With Flexible Extensible Connection," Moscow, 1959, 25 pp (Ministry of Higher and Secondary Specialist Education RSFSR. Moscow Higher Technical School imeni Bauman) (KL, 6-60, 123)

SVETLITSKIY, V.A.

Motion equations for an optimum flexible tensile string. Nauch. dokl.vys.shkoly; mash. i prib. no.1:85-93 '59. (MIRA 12:8)

1. Stat'ya predstavlena kafedroy "Soprotivleniye materialov" Moskovskogo vysshego tekhnicheskogo uchilishcha im. Baumana.
(Elastic rods and wires)

SVETLITSKIY, V.A.

Steady motion of an optimum-elastic string on a surface.
Nauch. dokl. vys. shkoly; mash. i prib. no.2:104-109 '59.
(MIRA 12:12)

(Elastic rods and wires)

SVETLITSKIY, V.A., assistent

Theory of transmissions with flexible connections. Izv.vys.ucheb. zav.; mashinostr. no.7:31-40 '59. (MIRA 13:6)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni Baumana.
(Belts and belting)

S/145/60/000/006/009/015/XX
D221/D304

AUTHOR: Svetlitskiy, V.A., Assistant

TITLE: Effect of elastic slip on the working of a transmission with flexible connection

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 6, 1960, 44 - 50

TEXT: The author formulates general equations of stationary motion on the basis of his previous results and deduces from them a relation generalizing Euler's formula and accounting for the dependence of the friction coefficient on the velocity of elastic gliding. Stresses in the transmission are determined. Graphs of traction coefficient and power for some values of the friction coefficient are given. There are 6 figures and 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: MVTU im. Baumana (MVTU im. Bauman)

SUBMITTED: February 3, 1959

Card 1/1

S/572/60/000/006/017/018
D224/D304

AUTHOR: Svetlitskiy, V. A., Engineer

TITLE: Some problems of the theory of transmissions with a flexible extensible belt

SOURCE: Raschety na prochnost'; teoreticheskiye i eksperimental'nyye issledovaniya prochnosti mashinostroitel'nykh konstruksiy. Sbornik Statey. No. 6, Moscow, 1960, 267-294

TEXT: The author gives a survey of previous investigations and concludes that previous theory cannot be used in most of the practically important cases, and cannot explain several experimental facts. The author's investigation refers to experimental results of I. Ya. Telis and works of N. Petrov and N. Ye. Zhukovskiy, according to which there are two zones on belt arc: 1) Zone of rest, 2) zone of gliding; he refers also to experiments of M. V. Tseplyayev for experimental values of the friction coefficient as a function of the velocity of elastic gliding W_e. These values are approxima-

Card 1/3

Some problems of ...

ted by a quadratic function of W_e. Differential equations of motion are accordingly derived containing a function of characterizing the elastic properties of the belt which can be expanded into a series of powers of the stress T. If the weight of the belt is neglected and the extension of the material approximated by a quadratic function of T one obtains $\partial T/\partial\varphi = \beta_{01} + \beta_{02}T + \beta_{03}T^2$, β being constant coefficients. The author supposes that the material obeys Hooke's law and neglects both weight and resistance of the medium; a formula for T is deduced. The motion of a transmission with two pulleys is then studied and a set of algebraic equations deduced, from which the tensions and the angles of relative rest can be obtained on terms of tangential velocity, transmitted moment and initial tension. Power transmitted by the belt and pressure on the bearing are determined. Cases of the friction coefficient being constant and linearly depending on W_e are discussed. Experimental investigations carried out by the author are described and the results com-

Card 2/3

Some problems of ...

S/572/60/000/006/017/018
D224/D304

pared with theoretical ones on graphs. There are 13 figures and 22 references : 10 Soviet-bloc and 12 non-Soviet-bloc.

Card 3/3

SVETLITSKIY, V.A., assistent

Effect of constant tension on the operation of a transmission with a flexible link. Izv.vys.ucheb.zav.; mashinostr. no.7:53-57 '60. (MIRA 13:11)

1. Moskovskoye vysshoye tekhnicheskoye uchilishche imeni Baumana.
(Kinematics)

SVETLITSKIY, V.A., assistent

Effect of the pliability of supports on the performance of a transmission with flexible connections. Izv.vys.ucheb.zav.; mashinostr. no.8:53-57 '60. (MIRA 13:9)

1. Moskovskoye vysshoye tekhnicheskoye uchilishche im. Baumana.

(Belts and belting)

SVETLITSKIY, V.A., kand.tekhn.nauk

Effect of the deformation of a string on the frequencies of its natural vibrations. Izv. vys. ucheb. zav.; mashinostr. no. 10:3-17 '60. (MIRA 14:1)

1. Moskovskoye vysshaya tekhnicheskoye uchilishche im. Baumana.
(Electric rods and wires--Vibration)

SVETLITSKIY, V.A., kand.tekhn.nauk

Stationary motion of a completely elastic uniform string. Izv.vys. ucheb.zav.; mashinostr. no.1:24-31 '61. (MIRA 14:4)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.
(Elastic rods and wires)

SVETLITSKIY, U.A.

Soveshchaniye po ... [illegible]

Tsiklicheskaya ... [illegible]
po ... [illegible]
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33? p. Errata slip inserted.

Resp. Ed.: I. A. ... [illegible]
Sciences of the ... [illegible]
Tech. Ed.: A. ... [illegible]

PURPOSE: This collection ... [illegible]
research workers ... [illegible]

COVERAGE: The collection ... [illegible]
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with the nature of ... [illegible]

Card 1/?

Card 8/9

S/137/62/000/012/058/089
A006/A101

AUTHORS: Gladyrevskaya, S. A., Ignatyuk, L. V., Svetlitskiy, V. A.

TITLE: A unit for investigating the corrosion fatigue of metals

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 104 - 105, abstract 12I641 (In collection: "Tsiklich. prochnost' metallov", Moscow, AN SSSR, 1962, 250 - 256)

TEXT: The authors describe the operational principle and the design of an electro-magnetic low-frequency unit for studying corrosion fatigue of metals with the automatic recording of fatigue cracks arising in the specimen. The mechanical section of the unit operates on the principle of a self-oscillating system; the specimen under investigation is placed in an aggressive solution bath (where the recovered force of the specimen and the mass of loads determine the proper oscillation frequency of the system). This section of the unit makes it possible to evaluate the fatigue and other strength characteristics of the specimen from variations of the specimen oscillation period. The unit is intended for testing plane 2 - 10 mm thick specimens, 30 mm wide, and 100 mm opera-

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... sec. intervals.
... and supplies the signals on the duration
... up to $\pm 10^{-4}$ sec. accuracy. This makes it possible to analyze
the slightest changes in the specimen during its cyclic loading.

SVETLITSKIY, V.A., kand.tekhn.nauk

Stress analysis of transmissions with a flexible steel band.
Rasch.na prochn. no.8:314-335 '62. (MIRA 15:8)
(Belts and belting)

SVETLITSKIY, V.A., kand. tekhn. nauk

Determination of the error in measuring deformations with a wire transducer. Izv. vys. ucheb. zav.; mashinostr. no.10: 48-53 '63. (MIRA 17:3)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.

SVETLITSKIY, V.A., kand. tekhn. nauk

Determining frequencies of minor vibrations of transmissions with a flexible coupling. Vest. mashinostr. 43 no.6:3-6 Je '63. (MIRA 16:7)

(Power transmission--Vibration)

SVETLITSKIY, V.A., kand. tekhn. nauk, dotsent; STASENKO, I.V., kand. tekhn. nauk, dotsent

Steady motion of an elastic thread unreeled from a bobbin. Izv.vys. ucheb. zav.; mashinostr. no.10:61-67 '64 (MIRA 18:1)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni N.E.Baumana.

SVETLITSKIY, V.A., kand. tekhn. nauk

Transmission with a self-tightening device. Izv. vys. ucheb. zav.; mashinostr. no.12:54-58 '64. (MIRA 18:3)

1. Moskovsoye vyssheye tekhnicheskoye uchilishche imeni Baumana.

GEKKER, F.R., assistent; SVETLITSKIY, V.A., kand. tekhn. nauk, dotsent

Investigating steady vibrations of systems with nonlubricated friction. Izv. vys. ucheb. zav.; mashinostr. no.2:50-56 '65.
(MIRA 18:5)

SVETLITSKIY, V.A., kand. tekhn. nauk; STASENKO, I.V., kand. tekhn. nauk; GABRYUK, V.I., inzh.

Steady motion and minor vibrations of an elastic string. Izv. vys. ucheb. zav.; mashinostr. no.2:57-67 '65.
(MIRA 18:5)

SVETLITSKIY, V.A., kand. tekhn. nauk; GABRYUK, V.I., inzh.

Investigating the steady motion of a string along a rough cylindrical surface. Izv. vys. ucheb. zav.; mashinostr. no.4:28-35 '65. (MIRA 18:5)

SOV/133-58-10-19/31

AUTHORS: Borovkov, A.N. and Sveslitskiy, Ye.A.

TITLE: The Use of Fixed Mandrels in a Piercing Unit of a Tube-rolling Mill (Primeneniye nesmenyayemoy opravki na proshivnom stane truboprokatnogo agregata 400)

PERIODICAL: Stal', 1958, Nr 10, pp 926 - 927 (USSR)

ABSTRACT: The use of long-lasting mandrels with internal water cooling in the first piercing unit of the 400 mm tube-rolling mill on the above works is described. The consumption of fixed water-cooled mandrels of 225 mm in diameter amounted to 0.07 - 0.12 kg/t as against ordinary mandrels 0.7-1.3 kg/t. The application of these mandrels not only facilitated the work of the mill personnel but also makes possible automation of the mill. Arrangements are being made for the introduction of similar mandrels on the second piercing unit of the mill. There is 1 figure.

ASSOCIATION: (Zakavkazskiy Metallurgical Works)
Zakavkazskiy metallurgicheskiy zavod

Card 1/1

SOV-118-58-9-12/19

AUTHORS: Borovkov, A.N. and Svetlitskiy, Ye.A., Engineers

TITLE: Mechanizing the Marking of Blooms (Mekhanizatsiya kleymeniya na blyuminge)

PERIODICAL: Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 1958, 12, Nr 9, pp 35-37 (USSR)

ABSTRACT: Previously at the Zakavkazskiy metallurgicheskiy zavod (Transcaucasian Metallurgical Plant), the marking of blooms and slabs was done by manual labor. The TsNIITMASh has designed and built an automatic marking machine which is operated by one man without bringing the roller conveyer to a stop. The machine is automatically engaged by light impulse operation control. If the light pencil from the glowing metal strikes the photoimpulsator, the electronic amplifier circuit is closed, activating the marking machine. The contactor remains connected as long as the light pencil strikes the photo-relay. The article presents a detailed description of this automatic marking machine. There are 3 schematic drawings.

1. Blooming mills--Equipment 2. Steels--Processing

Card 1/1

S/133/60/000/011/013/023
A054/A029

AUTHORS: Borovkov, A.N., Tsereteli, P.A., Svetlitskiy, Ye.A., Ubiriya, A.Ye., Kovbasa, I.I.

TITLE: The Use of Non-Detachable Mandrels for the Secondary Piercing of Tube Billets

PERIODICAL: Stal', 1960, No. 11, pp. 1022-1023

TEXT: The application of a non-detachable mandrel in the first piercing mill viz., in the 400 3M3 (ZMZ) type unit since 1959 has made it possible to automate the piercing process in the first mill, to prolong the useful life of the mandrel and to simplify the servicing of the machine. As the detachable mandrel of the second piercing mill was maintained, this part of the operation could not be automated, however. In order to eliminate this drawback of the process, several suggestions have been made to reconstruct the mandrel of the second piercing mill, first by the UkrNITI, later on by a team of the ZMZ (including the author of the article). The essential feature of the latter design was a thick-walled, non-detachable mandrel with thread for attaching it to the end piece of the roller and with openings in its surface for the outflowing cooling water. However, on account of the rigid attachment of the

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S/133/60/000/011/013/023
A054/A029

The Use of Non-Detachable Mandrels for the Secondary Piercing of Tube Billets

mandrel, the frictional forces in the first moment of the bite were not sufficient to make the mandrel revolve with the roller. In order to eliminate this drawback, the team of the ZMZ replaced this mandrel by a revolving type which consisted of a thick-walled mandrel fixed on a special end piece and a thick walled sleeve, continuously cooled from the inside with water under high pressure. During standstills when the mandrel is in its extreme rear position, it is cooled by a special spray. This non-fixed attachment of the mandrel, made possible by a specially shaped end piece, allows the mandrel to revolve freely as necessary in the first moment of the grip and insures uninterrupted internal cooling of the mandrel. During standstills when the mandrel is in its extreme-rear position, it is in this arrangement also cooled by a spray with water under high pressure. In an improved model of this construction (Author's Certificate No. 130473) the mandrel is fixed on an unsplit end piece and there are openings for the outflowing water on the working surface of the mandrel. The useful life of the new type non-detachable mandrels is 4-5 times longer than that of the conventional types, the machine is easier to service, its output is higher and the operation of the second piercing mill could be

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S/133/61/000/001/009/016
A054/A033

AUTHORS: Svetlitskiy, Ye. A. and Mindlin, B. I.

TITLE: Improving the Quality of the Inside Surface of Tubes When Reducing the Diametric Pitch During Piercing

PERIODICAL: Stal', 1961, No. 1, p 56

TEXT: On the "400" type tube rolling mill of the Zakavkazskiy metallurgicheskiy Zavod (Transcaucasian Metallurgical Plant) carbon steel tubes, 168, 219, 245, 273 and 325 mm in diameter and tubular products, 188 and 243 mm in diameter are manufactured. About 50% of the production consists of 219 mm-diameter tubes. The roll-caliber of the automatic rolling mill (designed by GIPROMEZ), for 219 mm diameter tubes, has the following dimensions: height-H 234 mm; width-B 248 mm, the B:H ratio 1.06. Formerly these tubes were rolled from billets, 222mm in diameter, with one piercing operation but to improve their shape, billets 180 mm in diameter were used instead, and the final dimensions of the tube blank were obtained on two piercings. However, by employing billets of smaller diameter, the diametric pitches increased sharply on the first piercing mill, as a result of which more 2nd class and 2nd quality tubes were produced owing to internal cinder-

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S/133/61/000/001/009/016
A054/A033

Improving the Quality of the Inside Surface of Tubes When Reducing the Diametric Pitch During Piercing

ing. Since January 1960, the 219 mm-diameter tubes have therefore been rolled with a smaller roll caliber (H = 220 mm, B = 232 mm, B:H = 1.055), resulting in a decrease of the total diametric pitch. This decrease, with the simultaneous increase in pitch on the second piercing mill reduced the pitch on the first piercing mill about 3.7 times, while the mandrel diameter was cut to 120 mm instead of 147 mm. The old and new caliber data are:

	old	new
Caliber height of the automatic mill, mm	234	220
indices for the first piercing mill, mm		
diameter of the tube blank coming from the mill, mm	210	188
diametric pitch, mm (the %-values in brackets)	30 (16.6)	8 (4.4)
indices for the second piercing mill, mm		
diameter of the tube blank coring form the mill, mm	244	232
diametric pitch, mm (%)	34 (16.2)	44 (23.4)

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Improving the Quality of the Inside Surface of Tubes When Reducing the Diametric Pitch During Piercing

Total diametric pitch, mm (%)	64 (35.4)	52 (28.8)

A comparison of the average indices for the last 2 months of 1959 and the first 2 months of 1960 shows that the number of 2nd class and 2nd quality tubes due to cindering decreased by 18.4%. The simultaneous cut in machining time resulted in a better utilization of the second piercing mill (when rolling 219 mm-diameter tubes) which thus no longer limited the operation of the whole mill. Using the new diameter of the tube blank the dimensions of the tube rolling tools could be reduced, the number of operating stands decreased from 7 to 5 and, consequently, the consumption of rolls and electric power was lowered.

ASSOCIATION: Zakavkazskiy metallurgicheskiy zavod (Transcaucasian Metallurgical Plant)

Card 3/3

SHARADZENIDZE, S.A., inzh.; BOROVKOV, A.N., inzh.; SVETLITSKIY, Ye.A., inzh.; TSERETELI, P.A., inzh.; MINDLIN, B.I.

Use of fixed mandrels on pipe piercing mills. Biul. TSIICHM no.2:28-31 '61. (MIRA 14:9)

(Pipe mills)

S/130/61/000/002/003/005
A006/A001

AUTHORS: Svetlitskiy, Ye. A., Head of the Piperolling Laboratory, Mindlin, B. I., Chief of the Piperolling Group TsZL

TITLE: Improving the Quality of Thin Walled Pipes

PERIODICAL: Metallurg, 1961, No. 2, pp. 31-32

TEXT: In order to produce large-diameter (325 and 273 mm) thin-walled pipes, it is imperative to reduce to a minimum the amount of blisters on the internal pipe surfaces. An investigation made at the Transcaucasian Metallurgical Plant has shown that the occurrence of blisters inside the sleeves and the pipes is caused by the appearance of a cavity in front of the mandrel tip when piercing the blank into the sleeve. The roughness of the internal pipe surface depends on the quality of the initial blank, its preheating prior to piercing, the setting of the first broaching mill and the magnitude of ratio of the diameter on the first piercing mill. It was established that a decrease in temperature by 70 - 100°C during the piercing of blanks on mill No. 1, strongly affected the quality of the internal pipe surface. Therefore when rolling 325 and 273 mm diameter pipes, preheating is now performed in two furnaces, to assure a better heating of

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Improving the Quality of Thin Walled Pipes

the blanks. The cavity in front of the mandrel tip results from non-uniform deformation and axial reduction in length. Radial tensile forces during piercing may entail rupture of the core (Figure). It is imperative to diminish reduction forces σ_2 which are the components of the skew forces σ_1. This may be achieved by reducing the diameter ratio

$$\frac{D_{sleeve} - D_{blank}}{D_{blank}} .$$

The unit 400 contains 2 piercing mills. The diameter ratio can be freely varied, i. e. it can be increased on one of the piercing mills by decreasing it on the other one. A decrease of the diameter ratio on mill 1 was obtained by reducing the mandrel diameter, the other parameters remaining constant. The angle α between the sleeve-blank axis and the skew force σ_1 decreases. This entails a decrease of forces σ_2. Therefore with a reduced mandrel diameter, the axial section of the blank is less subjected to radial tensile forces. Improved heating of ingots on the blooming mill, preheating of the blanks in two furnaces and a reduction of the diameter ratio on the first piercing mill, reduced the number of pipes with internal blisters by 40.7%.

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22312

S/133/61/000/004/001/015
A054/A127

18.3200

AUTHORS: Oyks, G. N., Doctor of Technical Sciences, Professor; Sharadzenidze, S. A., Engineer; Svetlitskiy, Ye. A., Engineer; Malyshev, S. I., Engineer; Lolua, K. K., Engineer, and Mindlin, B. I., Engineer

TITLE: Production of tubes from semi-killed steel with a double-layer crystalline structure

PERIODICAL: Stal', no. 4, 1961, 304 - 307

TEXT: Tests were carried out on automated manufacture of seamless tubes from semi-killed steel, instead of from killed steel as in the conventional process. A metal was required, incorporating the advantages of both killed and rimming steels. For this pupose rimming steel smelted in openhearth furnaces was cast in ingot molds with widened bases, into 5.5 - 6.3 ton ingots. Without interrupting the metal flow, aluminum granules (250 - 100 gr/ton of steel) were introduced during pouring in the central zone of the casting (the carbon-content varied correspondingly between 0.11 and 0.23%). Aluminum was added. Upon adding aluminum, the outer layers of

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Production of tubes from semi-killed steel...

the metal which were in contact with the mold wall, were already crystallizing and formed a low-carbon, sulfur- and phosphorus-free rimming skin, while, at the same time the core of the ingot was still liquid. Aluminum kills the rimming metal of the core, while the rate of oxidation can be controlled by the amount of aluminum added. Provided deoxidation was carried out in the correct way, the ingot consists of a) a soft, blister-free rimming skin, on an average 12 - 20 mm thick and b) a semi-killed core with uniform liquation of carbon, sulfur and phosphor, (not exceeding 130%), in vertical and transversal direction. The average rate of the rising of the metal in the mold was 0.28 - 0.32 m/min. The 250 x 310 mm and 280 x 310 mm blooms made of the test steel were put into the pusher-type furnace of the tube-rolling mill. The surface of the blooms is remarkably clean, not displaying any of the usual flaws of killed steel. The blooms were rolled on 400 mm stands, with the working rolls having the following angles of inclination: 8 - 9° for 168 x 6 mm tubes, 8 - 9° for 219 x 7 - 8 mm and 7 - 8° for 325 x 8 mm tubes. The piercing tests showed that the test metal was more strongly affected by the changes in temperature than billets made of killed steel. The test billets could not be pierced at 1190°C, whereas in

Production of tubes from semi-killed steel...

the conventional process piercing can easily be performed at 1150 - 1180°C. However, even when the temperatures were sufficiently high (1230 - 1260°C), the rejects amounted to 8%, as a result of incorrect adjustment of the first piercing stand. The hardness of the billet is not uniform in its cross-section (Fig. 2). The core is harder, than the external layers. The failure of the piercing tests could be eliminated by modifying some of the rolling parameters. The inclination of the rolls in the first stand was reduced by 1°, reduction at the neck of the rolls was increased by 2.7 - 2.8% and drawing out the nosepiece of the mandrel by 22 - 25%. By decreasing the inclination angle of the working rolls, friction and pulling forces increased whereas axial slip decreased. As a result of the increased reduction, the central parts were processed more thoroughly and piercing was promoted. The above mentioned changes in rolling parameters decreased the amount of non-piercable billets from 8% to 1.7%. Non-piercing of the billets can be entirely eliminated by raising the cropping of the top to 2 - 3%. A further cropping (3 - 4%) should be carried out for the 900 mm stand. The quality of the tube surface with double-layer structure is satisfactory. The rate of flawless products increased to 95 - 98%. The mechanical properties of the tubes made of the test steel complies with ГОСТ (GOST) 8731-58

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A054/A127

Production of tubes from semi-killed steel...

for killed steel (Ст.2, Ст.3 etc. Ст = St). There are 4 figures and 3 Soviet references.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute) and Zakavkazskiy metallurgicheskiy zavod (Zakavkaz Metallurgical Plant)

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SVETLITSKIY, Ye.A.; MINDLIN, B.I.

Improving the quality of thin-walled pipe. Metallurg 6 no.2:31-32 F '61. (MIRA 14:1)

1. Nachal'nik truboprokatnoy laboratorii Zakavkazskogo metallurgicheskiy zavoda (for Svetlitskiy). 2. Rukovoditel' truboprokatnoy gruppy TSentral'noy zavodskoy laboratorii Zakavkazskogo metallurgicheskogo zavoda (for Mindlin).
(Rolling (Metalwork)—Quality control)
(Pipe mills)

SHARADZENIDZE, S.A.; BOROVKOV, A.N.; SVETLITSKIY, Ye.A.

Practice of flame scarfing of pipe blanks. Stal' 23 no.9:824-826 S '63. (MIRA 16:10)

1. Rustavskiy metallurgicheskiy zavod.

ZHORDANIYA, I.S., inzh.; SVETLITSKIY, Ye.A., inzh.

Mastering the production of seamless thin-walled pipe on the 400 unit. Stal' 24 no.10:912-913 O '64. (MIRA 17:12)

1. Rustavskiy metallurgicheskiy zavod.

ZHORDANIYA, Irakliy Sergeyevich; SVETLITSKIY, Yefim Abramovich; RYMOV, V.A., red.

[Improving the production of pipe; work practices of the Rustávi Metallurgical Plant] Sovershenstvovanie proizvodstva trub; opyt raboty Rustavskogo metallurgicheskogo zavoda. Moskva, Metallurgiia, 1965. 122 p. (MIRA 18:7)

SVETLITSKIY, Ye.A.

Manufacture and use of casing pipes. Metallurg 10 no.10:30-31 O '65. (MIRA 18:10)

1. Rustavskiy metallurgicheskiy zavod.

KRASOVSKIY, V.I.; KUSHNIR, Yu.M.; BORDOVSKIY, G.A.; ZAKHAROV, G.F.; SVETLITSKIY, Ye.M.

Detection of corpuscules by the third artificial earth satellite. Isk.sput.Zem. no.2:59-60 '58. (MIRA 12:5)
(Artificial satellites)
(Solar radiation--Observations)

SVETILTSKY, YE. M.

ON THE NATURE OF HARD CORPUSCLES IN THE UPPER ATMOSPHERE
I.S. Shklovsky, V.I. Krasovsky, Yu.I. Galperin, Ye.M. Svetiltzky

1. Investigations conducted by Soviet and American artificial earth satellites have led to the detection of a region of intensive corpuscular radiation commencing at an altitude of several hundreds of kilometres and consisting of two "belts".

2. An analysis of the spatial distribution of these belts permits drawing certain conclusions concerning the mechanisms of generation and "escape" of hard corpuscles.

3. An analysis is given on the relationship between aurorae and streams of solar corpuscles, on the one hadn, and the energy spectrum and concentration of hard corpuscles in the outer "belt", on the other.

4. Calculations are made on the generation of hard corpuscles in the inner "belt" on the basis of the mechanism of decay of albedo neutrons.

5. There is given an analysis of other possibilities of generation of hard corpuscles in the upper atmosphere. Investigations of High-Energy Heavy Nuclei in the Primary Cosmic Radiation Close to the Geomagnetic Equator (Guam, Marianas Islands) D. M. Haskin, P. L. Jain, E. Lohrmann, Marcel Schein and M. Teucher.

In a large stack of nuclear emulsion exposed to the cosmic radiation at 102,000 feet near the geomagnetic equator, 540 tracks of high-energy heavy nuclei were located in a systematic scan and followed along the track.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959

SOV/49-59-8-7/27

AUTHORS: Krasovskiy, V. I., Shklovskiy, I. S., Gal'perin, Yu.I. and Svetlitskiy, Ye. M.

TITLE: Detection of Electrons in the Upper Atmosphere with Energies of About 10 keV on the Third Satellite

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 8, pp 1157-1163 (USSR)

ABSTRACT: An account is given of the results of measurements of electron streams with energies of 10 to 40 keV. The measurements were carried out by means of two fluorescent screens covered with thin pieces of absorbing aluminium foil placed on the satellite. Their radiation was recorded by photoelectron multiplier. It was found that the stream intensity decreased sharply with a decrease of energy. The stream of energy at high latitudes during the night was observed several tens of ergs/cm^2.sec.str. Fig 1 gives an examples of the relationship of the intensity of a stream of electrons and its equivalent energy a measured on May 15, 1958 at -42 to -54° magnetic latitude in the region 1720-1880 km high over the South Pacific.

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3 (7), 29 (2), 29 (5) SOV/20-127-1-20/65

AUTHORS: Krasovskiy, V. I., Shklovskiy, I. S., Gal'perin, Yu. I., Svetlitskiy, Ye. M.

TITLE: The Discovery in the Upper Atmosphere by Means of the Third Sputnik of Electrons Having an Energy of About 10 kev (Obnaruzheniye v verkhney atmosfere s pomoshch'yu tret'yego sputnika elektronov s energiyey okolo 10 kev)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 1, pp 78 - 81 (USSR)

ABSTRACT: In the third Soviet sputnik (which was launched on May 15, 1958) an experiment concerning the direct discovery of electrons of not very high energy was carried out in the upper atmosphere (Refs 1,2,3). It is characteristic of this experiment that practically only electrons of some dozens of kev were recorded. The indicators used did not react to the X-ray radiation generated by these electrons in the atmosphere and in the shell of the sputnik. Therefore, thin fluorescence screens (ZnS, activated Ag) with 2 mg matter per 1 cm^2 were used. As the authors used aluminum foils of various thicknesses as absorbers, it was possible, besides the intensity of fluxes of electrons of not particularly high energies, to evaluate also the "equivalent"

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of the electron fluxes on their "equivalent" energy within the range of from -42 to -54° geomagnetic latitude in altitudes of from 1720 to 1880 km in the night of May 15, 1958 above the southern part of the Pacific. When the sputnik rotated round its two axes, the intensity of the electron fluxes changed considerably. The electron fluxes are probably the cause of the heating and expansion of the upper atmosphere (which was deduced from the slowing-down of the sputnik). There are 1 figure and 17 references, 9 of which are Soviet.

ASSOCIATION: Institut fiziki atmosfery Akademii nauk SSSR (Institute for the Physics of the Atmosphere of the Academy of Sciences, USSR)

PRESENTED: April 14, 1959, by A. I. Berg, Academician

SUBMITTED: April 14, 1959

25990
S/560/61/000/006/008/010
E032/E314

9,9100

AUTHORS: Krasovskiy, V.I., Shklovskiy, I.S., Gal'perin, Yu.I., Svetlitskiy, Ye.M., Kushnir, Yu.M. and Bordovskiy, G.A.

TITLE: Discovery of Approximately 10 keV Electrons in the Upper Atmosphere

PERIODICAL: Akademiya SSSR. Iskusstvenyye sputniki Zemli. No. 6. Moscow, 1961, pp. 113 - 126

TEXT: Prior to experiments carried out with the aid of artificial Earth satellites, it was assumed that the natural glow, heating, and ionization of the upper atmosphere was largely due to hard electromagnetic radiation of solar origin. It was considered that corpuscular radiation (protons, α-particles and electrons) could only penetrate the atmosphere in the polar regions and thereby give rise to geomagnetic disturbances and aurorae. It was found that aurorae were frequently initiated by protons with a considerable velocity spread. However, in many cases, hydrogen-emission was not observed and the appearance of aurorae was provisionally associated with electrons having

Discovery of ....

energies up to a few hundreds or thousands of eV. An attempt was then made by Krasovskiy et al (Ref. 3 - UFN, 64, 425, 1958) to detect these electrons from the third Soviet artificial Earth satellite. The apparatus employed consisted of two very thin phosphors covered by aluminium foils. The scintillations were recorded by photomultipliers and the amplified photo-multiplier signal was stored and later telemetered to Earth. Owing to the presence of the aluminium foils (which were of differing thicknesses) it was possible to estimate both the intensity and the energy of the electrons which were most effective in exciting the phosphors. A particular feature of this apparatus was that it was sensitivie only to electrons and did not respond to protons and photons of comparable energy. The apparatus indicated the presence of large electron currents at altitudes up to 900 km in the region of the southern part of the Pacific Ocean, the energy of these electrons being of the order of 10 keV. These currents were often so large that the apparatus gave off-scale readings since such high currents were not expected. In the case of these off-scale readings the energy

Discovery of ....

preliminary laboratory experiments with mono-energetic electrons. The form of the energy spectrum recorded by the satellite is unknown and comparison of the readings produced by the two detectors can only be used to estimate an equivalent energy. This equivalent energy E_{equiv} is defined as the energy of a monochromatic beam which gives the same photo-current ratio for the two detectors as the observed value. Proceeding along these lines one can also define an equivalent current and an equivalent energy flux. It can easily be shown that these equivalent quantities give, in fact, the lower limits of the measured quantities. Consideration of the telemetric records, a number of which are reproduced in the present paper, showed that the most frequently recorded energies occurred in the neighbourhood of 14 keV. Since the sensitivity of the apparatus is considerably higher for high-energy electrons, it follows that in the case of non-monochromatic electrons the maximum flux corresponds to an energy below 14 keV. This maximum can be determined if some energy-distribution function

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AUTHORS: Varfolomeyev, A. A., Golenko, D. I., Svetlolobov, I. A. SOV/2o-122-5-10/56

TITLE: The Characteristics of the Electromagnetic Cascades in a Photoemulsion With Consideration of the Influence of the Medium on the Radiation Processes (Kharakteristiki elektromagnitnykh kaskadov v fotoemul'sii s uchetom vliyaniya sredy na protsessy izlucheniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 5, pp 785 - 787 (USSR)

ABSTRACT: This paper gives the results of the calculations (carried out by means of the Monte-Carlo (Monte Karlo) method) of the electromagnetic cascades in a distance of up to 1.5 radiation units. These electromagnetic cascades are assumed to be produced by electrons of initial energies of 10^{11} and 10^{12} eV. These calculations were carried out by taking account of the real (not of the asymptotic) cross sections of the elementary electromagnetic processes

(as functions of the particle energies). Two variants of the calculations were carried out: In the first variant only the relations of Bethe (Bete) and Heitler (Gaytler) for the elementary processes were used, and in the second variant the formulae of A.B.Migdal (Ref 1) were used in order to take into account the influence exercised by the medium upon the radiation processes of the high energy electrons. The conditions of the cascade calculations are discussed in short. The cross sections of the elementary processes were calculated for the nuclear emulsions Ilford (Il'ford) G-5. Both of the above-mentioned variants gave the following results: 1) The energy spectra of the electron-positron pairs produced in depths of up to t_1 and t_2 respectively, for the initial energies of 10^{12} eV and 10^{11} eV. 2) The energy spectra of the electrons which reach the depths t_1 and t_2 for the

initial energies 10^{12} eV and 10^{11} eV respectively. 3) Various data which permit conclusions concerning the fluctuations of the results and concerning the dependence of the fluctuations on the investigated depth t, on the initial energy, and on the energy interval of the secondary particles. According to these results, the investigations of a few showers of the energy of 10^{12} eV supply definite arguments in favor of the investigated effects. In order to obtain the same amount of information, the investigation of a greater number of 10^{11} eV showers would be necessary. The results of this paper can be applied also to other media. The authors thank I.I.Gurevich for his interest in this paper and for discussing the results, and also I.P.Lavrushkin for his help in formulating the results. There are 3 figures, 1 table, and 4 references, 3 of which are Soviet.

The Characteristics of the Electromagnetic Cascades in a Photoemulsion With Consideration of the Influence of the Medium on the Radiation Processes

SOV/2o-122-5-1o/56

PRESENTED: May 2), by I.V.Kurchatov, Academician

SUBMITTED: May 15, 1958

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SVETLOLOBOV, I.A.

"CALCULATION OF CASCASES WITH ENERGIES FROM 10^9 TO 10^{13} ev BY THE MONTE CARLO METHOD TAKING INTO CONSIDERATION THE INFLUENCE OF THE MEDIUM UPON BREMS-STRAHLUNG"

I.S. Svetlolobov, A.A. Varfolomeyev

The longitudinal development of electromagnetic cascades in nuclear emulsion has been calculated at a depth up to 2.8to for primary electron energies from 10^9 to 10^{13} ev. The calculation was carried out by the Monte Carlo method using the "Strela" electronic computer.

In the calculations, use was made of the actual (not asymptotic) cross sections of the following elementary processes in the field of the nuclei and electrons all the emulsion components: Bermsstrhlung, production of pars by photons and electrons, Compton-effect, and ionization losses.

report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959

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S/627/60/002/000/023/027
D299/D304

3.2410 (2205, 2705, 1559)

AUTHORS: Varfolomeyev, A. A., and Svetlolobov, I. A.

TITLE: Computing cascades with energies of 10^{11} - 10^{13} ev. by the Monte Carlo method with allowance for the influence of the medium on the bremsstrahlung

SOURCE: International Conference on Cosmic Radiation. Moscow, 1959. Trudy. v. 2. Shirokiye atmosfernyye livni i kaskadnyye protsessy, 292-298

TEXT: The calculations were carried out on the electronic computer "Strela" by the Monte Carlo method. The primary particles were electrons with energies $E_0 = 10^9 - 10^{13}$ ev. The one-dimensional problem was considered, involving the following processes in the field of nuclei and electrons of the emulsion: bremsstrahlung, pair creation, the Compton effect, photonuclear absorption and ionization losses. The investigations were carried out for depths t ranging from 1.0 to 2.8. Two methods of calculation were used: The

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exact non-asymptotic Bethe-Heitler formulas for the effective cross-section of bremsstrahlung and pair creation, and Migdal's formula (Ref. 6: ZhETF, 32, 633, 1957; Phys. Rev., 103, 1811, 1956) for the effect of the medium on the bremsstrahlung. A table lists the absorption coefficients of gamma-quanta interacting with the nuclei and electrons of the emulsion. The differential energy spectra of pairs and electrons for energies $E_0 = 10^{11} - 10^{13}$ ev. are listed in another table, whereas the integral spectra of pairs are shown in a figure, from which it is evident that in the soft part of the spectrum the number of pairs computed by the Bethe-Heitler formula is more than double the number obtained by Migdal's formula. As the authors did not possess many statistical data (which are required for a complete solution of the fluctuation problem), they confined themselves to the study of cascades at small depths. Denoting by $Q_\beta(E_0,\varepsilon,t)$ the actual number of electrons with energies exceeding ε at depth t in an electron cascade with energy E_0, and by $Q(E_0,\varepsilon,t)$ - the number of pairs with energy $>\varepsilon$ formed at a depth $\leqslant t$, it is

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possible to formulate the main result as follows: With given E_o, $\mathcal{E}$, t it is always possible to choose the coefficient k in such a way that the cascade distribution with respect to the number $k\frac{Q}{N}$ (or $k\frac{Q}{N_\beta}$) should follow Poisson's distribution with mean value k, whereby N and N_β are the mean values of Q and Q_β respectively. With small t and small $\mathcal{E}$ (1 to 10 Mev), the coefficient k does not depend on E_o and on the method of calculation (for the energy range under consideration, 10^{10} - 10^{13} ev.). The coefficient k was found to be the same for both electrons and pairs, $k(t_1) = 1.5$ and $k(t_2) = 3$, ($t_1 = 1.0\ t_o$ and $t_2 = 1.5\ t_o$). There are 2 figures, 5 tables and 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: W. H. Furry, Phys. Rev., 52, 569, 1937; S. K. Srinivasan, J. C. Butcher, B. A. Chartres. H. Messel. Nuovo Cim. Suppl., 9. 77. 1958.

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24(5),21(7)

AUTHORS: Varfolomeyev, A. A., Svetlolobov, I. A. SOV/56-36-6-22/66

TITLE: Computation of Electromagnetic Cascades by Means of the Monte Carlo Method Taking Account of the Influence of the Medium on Bremsstrahlung (Raschet elektromagnitnykh kaskadov metodom Monte-Karlo s uchetom vliyaniya sredy na tormoznoye izlucheniye)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 6, pp 1771-1781 (USSR)

ABSTRACT: The results of this very detailed paper have partly already been published (Refs 9,10). For the purpose of investigating the high-energy electron-photon showers nuclear emulsion piles are frequently used with good success, which are irradiated in the stratosphere; the emulsions have a radiation unit depth of up to t_0 = 2.9 cm and are used in piles of up to several liters volume. In such piles it is possible to record single electron-photon showers with primary energies of up to 10^{12} ev and having a length of several radiation units. Such electromagnetic cascades are especially interesting during the initial stages of their development; in the present paper

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the results obtained by cascade computations carried out by the Monte Carlo method are published. The cascades initiated by 10^9, 10^{10}, 10^{11}, 5.10^{11}, 10^{12}, and 3.10^{12} ev primary electrons are computed for depths of up to 2.8 radiation units. Real (non-asymptotic) cross sections for elementary electromagnetic processes in the photographic emulsion are taken into account. Two kinds of computations are carried out: such as are based upon the Bethe-Heitler formulas, and such as take the effect of multiple scattering and polarization of the medium on bremsstrahlung into account. Part 1 of the paper gives a detailed account of the problem and a short survey of several publications dealing with this field. In part 2 the influence exercised by the medium on the bremsstrahlung in the nuclear emulsion (according to Landau and Pomeranchuk (Ref 11), Ter-Mikayelyan (Ref 12), Migdal (Ref 13), and Feynberg et al (Ref 14)) is discussed. Figure 1 compares the energy distribution of electron bremsstrahlung in the emulsion according to Bethe-Heitler and Migdal as well as

Ter-Mikayelyan. In the third part of the paper consideration of the elementary cross sections of the electromagnetic processes is discussed. Experimental data are taken into account for R-NIKFI and Ilford G-5 emulsions. Figure 2 shows the course of the absorption coefficient of γ-quanta computed for formation in pairs, Compton effect, and photoeffect; figure 3 shows the E_0-dependence of the coefficient $\tau = 1/\lambda$ for quantum radiation with an energy $\hbar\omega \geq \varepsilon$ ($\varepsilon = 1.5 \cdot 10^6$ and 10^8 ev). The following chapter deals with the conditions computing the cascades. Computations are carried out for 4 different depths: $t_1 = 1.0\ t_0$, $t_2 = 1.5\ t_0$, $t_3 = 2.1\ t_0$, and $t_4 = 2.8\ t_0$. The results obtained are shown by numerous diagrams. Thus, six diagrams in figure 4 show the integral energy spectra for various primary energies E_0 of the electron causing the shower and various t_i computed according to Bethe-Heitler, Migdal, Arley, Janossy, and Messel and

Computation of Electromagnetic Cascades by Means of the Monte Carlo Method Taking Account of the Influence of the Medium on Bremsstrahlung

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Srinivasan et al. Table 1 gives a survey of the differential energy spectra of electrons and pairs in cascade showers for different t_i and different E_0. Further diagrams show energy spectra, the number of electrons in dependence on E_0, and the detection probability for N electrons with $E > 3.10^8$ ev at $E_0 = 10^{12}$. Table 2 finally gives the number of electron-positron pairs with a total energy $\geq 1.5.10^6$ ev for 5 different E_0-values, computed according to Bethe-Heitler and Migdal. In conclusion, the authors thank I. I. Gurevich, A. B. Migdal, and P. E. Nemirovskiy for their interest and consultation, A. A. Dorodnitsin for placing the computer at their disposal, and D. I. Golenko for programing the computation problems. There are 7 figures, 2 tables, and 30 references, 10 of which are Soviet.

SUBMITTED: December 12, 1958

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S/056/62/043/001/047/056
B102/B104

AUTHORS: Barkov, L. M., Mukhin, K. N., Ogurtsov, V. V., Romantseva, A. S., Svetlolobov, I. A., Chuyeva, S. A., Shlyapnikov, R. S., Likhachev, M. F., Stavinskiy, V. S., Strunov, L. N.

TITLE: The problem of the D^+-meson

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 1(7), 1962, 335-337

TEXT: The authors have searched for a D^+-meson production or a decay among 14,000 pairs of photographs. A propane bubble chamber with pulsed magnetic field was irradiated with a beam of positively charged particles (momentum $\approx$1.8 Bev/c) containing up to 9% K^+ mesons. The processes looked for were $K^+ + p \rightarrow D^+ + \Sigma^+$ and

$$D^+ \nearrow K^0 + \pi^+$$
$$\searrow K^+ + \pi^0$$

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